**Amendments to the Claims**:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims**:

1. A method for evaluating ~~the random numbers generated by~~ a random number generator, the method comprising ~~the steps of~~:

generating a stream of random numbers;

determining an average number of bits that have a value of a predetermined logic value at a ~~specific,~~ predefined range of intervals;

~~applying each of the average number of bits indicative of said predetermined logic value to~~ using an exponential averaging operation ~~(A)~~; and,

determining whether ~~said~~ the random number generator is properly providing random numbers ~~generated random numbers are unpredictable~~ by comparing ~~the~~ an output of ~~said~~ the exponential averaging operation ~~(A)~~ to a predetermined acceptance range.

2. The method of claim 1, wherein the value of ~~said~~ the predetermined logic value is one of 1~~'s~~ and 0~~'s~~.

3. The method of claim 1, ~~further comprising the step of~~ including determining that ~~said~~ the random number generator is not properly providing random numbers ~~generated random numbers are predictable~~ when the output of ~~said~~ the exponential averaging operation ~~(A)~~ falls outside ~~said~~ the predetermined acceptance range.

4. The method of claim 1, ~~further comprising the step of~~ including notifying that ~~said~~ the random number generator is not properly providing random numbers ~~generated random sequences are predictable~~ when the output of ~~said~~ the exponential averaging operation~~s (A)~~ falls outside ~~said~~ the predetermined acceptance range.

5. The method of claim 1, ~~further comprising the step of~~ including updating ~~all~~ ~~said~~ the exponential averaging operation~~s (A)~~ each time a new bit is generated.

6. The method of claim 5, wherein ~~said~~ the exponential averaging operation ~~(A)~~ is updated according to the following equation:

$A_{new} = \alpha \cdot A_{old} + b$,

wherein $\alpha = 1 - 1/n$, $n>>1$, ~~and $\alpha$ falls between 0 and 1 ($0 < \alpha < 1$)~~, and wherein $b$ is a value ~~comprising~~ of 1 when the ~~average number of bits~~ predetermined logic value is obtained, otherwise 0.

7. The method of claim 1, ~~further comprising the step of~~ including generating a new set of random sequences when the output of ~~said~~ the exponential averaging operation falls outside ~~said~~ the predetermined acceptance range.

8. The method of claim 6, wherein ~~said~~ the predetermined acceptance range is defined as follows:

$[n/2 - c \cdot \sqrt{n}, n/2 + c \cdot \sqrt{n}]$,

where $c$ is selected to achieve a desired security threshold level.

9. A method for evaluating ~~the random numbers generated by~~ a random number generator, the method comprising ~~the steps of~~:

(a) generating a stream of random numbers of binary bits using ~~said~~ the random number generator;

(b) determining an average number of bits that have a value of a predetermined logic value at a specific, predefined range of intervals~~;~~

~~(c) computing~~ using an exponential averaging operation ~~(A) on the average number of bits indicative of said predetermined logic value~~;

(~~d~~c) comparing ~~the~~ an output of ~~said~~ the exponential averaging operation ~~(A)~~ to a predetermined acceptance range; and~~,~~

(~~e~~d) determining that ~~said~~ the random number generator is not properly operating ~~generated random numbers are predictable~~ when the output of ~~said~~ the computed exponential averaging operation ~~(A)~~ falls outside ~~said~~ the predetermined acceptance range.

10. The method of claim 9, ~~further comprising the step of:~~ including repeating ~~said steps~~ (a) - (~~e~~d) until ~~said computed~~ the output of the exponential averaging operation ~~(A)~~ repeatedly falls outside ~~said~~ the predetermined acceptance range more than a predefined number of times.

11. The method of claim 9, ~~further comprising the step of~~ including notifying that the random number generator is not properly operating ~~non-random numbers are generated~~ when ~~said~~ the output of the computed exponential averaging operation ~~(A)~~ repeatedly falls outside ~~said~~ the predetermined acceptance range more than a predefined number of times.

12. The method of claim 9, ~~further comprising the step of~~ including generating a new set of random numbers when ~~said~~ the output of the computed exponential averaging operation ~~(A)~~ repeatedly falls outside ~~said~~ the predetermined acceptance range more than a predefined number of times.

13. The method of claim 9, ~~further comprising the step of~~ including updating ~~said~~ the exponential averaging operation ~~(A)~~ according to the following equation:

$A_{new} = \alpha \cdot A_{old} + b$,

wherein $\alpha = 1 - 1/n$, $n>>1$ ~~and α falls between 0 and 1 (0 < α < 1)~~, and wherein $b$ is a value ~~comprising~~ of 1 when the ~~average number of bits~~ predetermined logic value is obtained, otherwise 0.

14. The method of claim 13, wherein ~~said~~ the predetermined acceptance range is defined as follows:

$[n/2 - c \cdot \sqrt{n}, n/2 + c \cdot \sqrt{n}]$,

where $c$ is selected to achieve a desired security threshold level.

15. An apparatus ~~for evaluating the random numbers generated by a random number~~, comprising:

a random generator unit for generating ~~substantially random~~ sequences of binary bits;

a detector unit, coupled to ~~the~~ an output of ~~said~~ the random generator unit, for detecting whether ~~said~~ the generated random sequences are unpredictable; and,

a switching unit, coupled to the output of the ~~s said~~ random generator unit and an output of the ~~said~~ detector unit, for disabling the flow of the ~~said generated random sequences for a subsequent application~~ when ~~said~~ the generated random sequences are determined to be predictable,

wherein

the detector unit is configured to:

determine an average number of bits that have a value of a predetermined logic value at a specific, predefined range of intervals ~~is determined and applied to~~ using exponential averaging operations ~~(A)~~, and ~~wherein,~~

determine that the sequence is predictable if the output of ~~said~~ the exponential averaging operations ~~(A)~~ falls outside a predetermined acceptance range~~, determining that said generated random sequences are predictable~~.

16. The apparatus of claim 15, further comprising means for transmitting an alarm signal when the output of ~~said~~ the exponential averaging operation ~~(A)~~ falls outside ~~said~~ the predetermined acceptance range.

17. The apparatus of claim 15, wherein ~~said~~ the exponential averaging operation ~~(A)~~ is performed according to the following equation:

$A_{new} = \alpha \cdot A_{old} + b$,

wherein $\alpha = 1 - 1/n$, ~~n>>1 and α falls between 0 and 1 (0 < α < 1)~~, and wherein $b$ is a value ~~comprising~~ of 1 when the ~~average number of bits~~ predetermined logic value is obtained, otherwise 0.

18. The apparatus of claim 17, wherein ~~said~~ the predetermined acceptance range is defined as follows:

$[n/2 - c \cdot \sqrt{n}, n/2 + c \cdot \sqrt{n}]$,

where $c$ is selected to achieve a desired security threshold level.

19. A machine-readable medium having stored thereon data representing sequences of instructions, and the sequences of instructions which, when executed by a processor, cause the processor to:

generate a stream of random bits;

determine an average number of bits that have a value of a predetermined logic value at a specific, predefined range of intervals~~;~~

~~perform~~ using an exponential averaging operation ~~(A)~~ on the number of bits indicative of ~~said~~ the predetermined logic value; and~~,~~

compare ~~the~~ an output of ~~said~~ the exponential averaging operations ~~(A)~~ to a predetermined acceptance range.

20. The machine-readable medium of claim 19, wherein ~~said~~ the generated random numbers are determined to be predictable when ~~said~~ the computed exponential averaging operation ~~(A)~~ falls outside ~~said~~ the predetermined acceptance range.

21. The machine-readable medium of claim 19, wherein ~~said~~ the exponential averaging operation ~~(A)~~ is performed according to the following equation:

$A_{new} = \alpha \cdot A_{old} + b$,

wherein $\alpha = 1 - 1/n$, n>>1 ~~and $\alpha$ falls between 0 and 1 ($0 < \alpha < 1$)~~, and wherein $b$ is a value ~~comprising~~ of 1 when the ~~average number of bits~~ predetermined logic value is obtained, otherwise 0.

22. The machine-readable medium of claim 21, wherein ~~said~~ the predetermined acceptance range is defined as follows:

$[n/2 - c \cdot \sqrt{n}, n/2 + c \cdot \sqrt{n}]$,

where $c$ is selected to achieve a desired security threshold level.